

2. The largest and smallest pieces in the group should be selected, and the machine on which the work is to be done should be determined according to the sizes of these pieces.

If the variation in size is considerable, it may be economical

to do a part of the work on one machine and the remainder on

another, in which case the fixture should be so made that it

can be adapted for use on both machines.

There may even be

cases when the range of sizes is so great that two or more fix

tures may be necessary, one of which can be used on one machine

and the other on a different one; or they can be made inter

changeable, providing the speeds on both machines give range

enough to handle the work. These points should be carefully considered.

3. The accuracy required in the finished work should be

noted and care taken to provide means of upkeep on surfaces

or locating points that are subject to wear.

There may be

occasional instances, on work requiring extreme accuracy, when

it may be necessary to provide means of adjustment for truing

up the fixture so that it will always run perfectly concentric

with the spindle of the machine.

4. Rigidity in work-holding devices and tools should receive

careful attention; and overhang from the spindle, turret, or

cut-off slide should be kept down to a minimum, so that chatter

will not result from lack of support. These points need more

consideration when the tools and fixtures are to be used on

the horizontal type of machine, than when a vertical machine

is to be employed.

5. Clamping devices for adjustable fixtures should be laid out (by means of a piece of tracing paper) for each piece to be handled, so that there will be no chance of clamps being too long, too short, or improperly proportioned for some of the work. Errors are very likely to occur in this part of the design unless the greatest care is used; and there are also cases when the work varies in thickness as well as in diameter; therefore, this point must be carefully considered.

6. Provision for cleaning the fixture must be made, so that all locating points and surfaces will be readily accessible. If